

配列表

SEQUENCE LISTING

<110> ASANO Shinichiro et al.

<120> Protein Having Insecticidal Activity, DNA Coding Said Protein, Pest Control Agent and Pest Control Method

<130> BOF-3887PCT

<150> JP 2000-236140

<151> 2000-08-03

<160> 3

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<211> 1167

<212> PRT

<213> *Bacillus thuringiensis*

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Ser Glu Gly Glu Asn Pro Glu Leu Phe Gly Asn Pro Glu Thr Phe Ile
50 55 60

Ser Ser Ser Thr Val Gln Thr Gly Ile Gly Ile Val Gly Gln Val Leu
65 70 75 80

Gly Ala Leu Gly Val Pro Phe Ala Gly Gln Ile Ala Ser Phe Tyr Ser
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Phe Ile Val Gly Gln Leu Trp Pro Ser Ser Thr Val Ser Val Trp Glu
 100 105 110

Met Ile Met Lys Gln Val Glu Asp Leu Ile Asp Gln Lys Ile Thr Asp
 115 120 125

Ser Val Arg Lys Thr Ala Leu Ala Gly Leu Gln Gly Leu Gly Asp Gly
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Leu Asp Val Tyr Gln Lys Ser Leu Lys Asn Trp Leu Glu Asn Arg Asn
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Asp Thr Arg Ala Arg Ser Val Val Val Thr Gln Tyr Ile Ala Leu Glu
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Leu Asp Phe Val Ala Lys Ile Pro Ser Phe Ala Ile Ser Gly Gln Glu
 180 185 190

Val Pro Leu Leu Ser Val Tyr Ala Gln Ala Ala Asn Leu His Leu Leu
 195 200 205

Leu Leu Arg Asp Ala Ser Ile Phe Gly Ala Glu Trp Gly Phe Thr Pro
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Gly Glu Ile Ser Thr Phe Tyr Asp Arg Gln Val Thr Arg Thr Ala Gln
 225 230 235 240

Tyr Ser Asp Tyr Cys Val Lys Trp Tyr Asn Thr Gly Leu Asp Lys Leu
 245 250 255

Lys Gly Thr Asn Ala Ala Ser Trp Leu Lys Tyr His Gln Phe Arg Arg
 260 265 270

Glu Met Thr Leu Leu Val Leu Asp Leu Val Ala Leu Phe Pro Asn Tyr
 275 280 285

Asp Thr Arg Thr Tyr Pro Ile Glu Thr Thr Ala Gln Leu Thr Arg Glu

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Val Tyr Thr Asp Pro Ile Val Phe Asn Arg Glu Thr Ser Gly Gly Phe			
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Cys Arg Arg Trp Ser Leu Asn Ser Asp Ile Ser Phe Ser Glu Val Glu			
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Ser Ala Val Ile Arg Ser Pro His Leu Phe Asp Ile Leu Ser Glu Ile			
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Leu Glu Tyr Trp Val Gly His Ser Ile Lys Tyr Lys Asn Thr Asn Ala			
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Ser Ser Ala Leu Glu Arg Asn Tyr Gly Thr Ile Thr Ser Asn Lys Ile			
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Lys Tyr Tyr Asp Leu Ala Asn Lys Asp Ile Phe Gln Val Arg Ser Leu			
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Gly Ala Asp Leu Ala Asn Tyr Tyr Ala Gln Val Tyr Gly Val Pro Tyr			
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Ala Ser Phe Thr Leu Leu Asp Lys Asn Thr Gly Ser Gly Ser Val Gly			
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Gly Phe Thr Tyr Ser Lys Pro His Thr Thr Met Gln Val Cys Thr Gln			
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Asn Tyr Asn Thr Ile Asp Glu Ile Pro Pro Glu Asn Glu Pro Leu Ser			
465	470	475	480
Arg Gly Tyr Ser His Arg Leu Ser His Ile Thr Ser Tyr Ser Phe Ser			
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Lys Asn Ala Ser Ser Pro Ala Arg Tyr Gly Asn Leu Pro Val Phe Ala
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Trp Thr His Arg Ser Ala Asp Val Thr Asn Thr Val Tyr Ser Asp Lys
 515 520 525

Ile Thr Gln Ile Pro Val Val Lys Ala His Thr Leu Val Ser Gly Thr
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 580 585 590

Leu Arg Leu Phe Val Thr Ile Ser Gly Thr Arg Ile Tyr Ser Ile Asn
 595 600 605

Val Asn Lys Thr Met Asn Lys Gly Asp Asp Leu Thr Phe Asn Thr Phe
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Asp Leu Ala Thr Ile Gly Thr Ala Phe Thr Phe Ser Asn Tyr Ser Asp
 625 630 635 640

Ser Leu Thr Val Gly Ala Asp Ser Phe Ala Ser Gly Gly Glu Val Tyr
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Val Asp Lys Phe Glu Leu Ile Pro Val Asn Ala Thr Phe Glu Ala Glu
 660 665 670

Glu Asp Leu Asp Val Ala Lys Lys Ala Val Asn Gly Leu Phe Thr Ser
 675 680 685

Lys Lys Asp Ala Leu Gln Thr Ser Val Thr Asp Tyr Gln Val Asn Gln
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Ala Ala Asn Leu Val Glu Cys Leu Ser Asp Glu Leu Tyr Pro Asn Glu
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Lys Arg Met Leu Trp Asp Ala Val Lys Glu Ala Lys Arg Leu Val Gln
725 730 735

Ala Arg Asn Leu Leu Gln Asp Thr Gly Phe Asn Arg Ile Asn Gly Glu
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Asn Gly Trp Thr Gly Ser Thr Gly Ile Glu Val Ala Glu Gly Asp Val
755 760 765

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Thr Glu Thr Tyr Pro Thr Tyr Leu Tyr Gln Gln Ile Asp Glu Ser Leu
785 790 795 800

Leu Lys Pro Tyr Thr Arg Tyr Lys Leu Lys Gly Phe Ile Gly Ser Ser
805 810 815

Gln Asp Leu Glu Ile Lys Leu Ile Arg His Arg Ala Asn Gln Ile Val
820 825 830

Lys Asn Val Pro Asp Asn Leu Leu Pro Asp Val Leu Pro Val Asn Ser
835 840 845

Cys Gly Gly Ile Asp Arg Cys Ser Glu Gln Gln Tyr Val Asp Ala Asn
850 855 860

Leu Ala Leu Glu Asn Asn Gly Glu Asn Gly Asn Met Ser Ser Asp Ser
865 870 875 880

His Ala Phe Ser Phe His Ile Asp Thr Gly Glu Ile Asp Leu Asn Glu
885 890 895

Asn Thr Gly Ile Trp Val Val Phe Lys Ile Pro Thr Thr Asn Gly Tyr

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Ala Thr Leu Gly Asn Leu Glu Leu Val Glu Glu Gly Pro Leu Ser Gly		
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Glu Thr Leu Glu Arg Ala Gln Gln Gln Glu Gln Gln Trp Gln Asp Lys		
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Gln Ala Ile Asp Arg Leu Phe Ala Asp Tyr Gln Asp Gln Lys Leu Asn		
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Ser Gly Val Glu Met Ser Asp Met Leu Ala Ala Gln Asn Leu Val Gln		
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Ser Ile Pro Tyr Val Tyr Asn Asp Ala Leu Pro Glu Ile Pro Gly Met		
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Gly Leu Ser Asp Trp Asn Ala Thr Ser Asp Val Asn Val Gln Gln Leu		
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Ser Asp Thr Ser Val Leu Val Ile Pro Asn Trp Asn Ser Gln Val Ser		
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Gln Gln Phe Thr Val Gln Pro Asn Tyr Arg Tyr Val Leu Arg Val Thr		
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Ala Arg Lys Glu Gly Val Gly Asp Gly Tyr Val Ile Ile Arg Asp Gly		
1090	1095	1100

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Gly Val Leu Ser Ala Asp Gln Thr Ser Tyr Ile Thr Lys Thr Val Glu
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<212> DNA

<213> *Bacillus thuringiensis*

<220>

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tct act tct gta tcc gat aat tct gtt aga tac cct tta gca aac gat 96
 Ser Thr Ser Val Ser Asp Asn Ser Val Arg Tyr Pro Leu Ala Asn Asp
 20 25 30

caa acg acc aca tta caa aac atg aac tat aaa gat tat ctg aga atg 144
 Gln Thr Thr Thr Leu Gln Asn Met Asn Tyr Lys Asp Tyr Leu Arg Met
 35 40 45

tct gag gga gag aat cct gaa tta ttt gga aat ccg gag acg ttt att 192

Ser Glu Gly Glu Asn Pro Glu Leu Phe Gly Asn Pro Glu Thr Phe Ile
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agt tca tct acg gtt caa act gga att ggc att gtt ggt caa gta ctg 240
 Ser Ser Ser Thr Val Gln Thr Gly Ile Gly Ile Val Gly Gln Val Leu
 65 70 75 80

ggg gct tta ggg gtt cca ttt gct gga cag ata gct agt ttt tat agt 288
 Gly Ala Leu Gly Val Pro Phe Ala Gly Gln Ile Ala Ser Phe Tyr Ser
 85 90 95

ttc att gtc ggt caa tta tgg cca tca agt acc gtg agt gta tgg gaa 336
 Phe Ile Val Gly Gln Leu Trp Pro Ser Ser Thr Val Ser Val Trp Glu
 100 105 110

atg att atg aaa caa gtg gaa gat cta att gat caa aaa ata aca gat 384
 Met Ile Met Lys Gln Val Glu Asp Leu Ile Asp Gln Lys Ile Thr Asp
 115 120 125

tct gta agg aaa aca gcg ctt gca gga cta caa gga tta gga gat ggc 432
 Ser Val Arg Lys Thr Ala Leu Ala Gly Leu Gln Gly Leu Gly Asp Gly
 130 135 140

tta gac gta tat cag aaa tca ctt aag aat tgg ctg gaa aat cgt aat 480
 Leu Asp Val Tyr Gln Lys Ser Leu Lys Asn Trp Leu Glu Asn Arg Asn
 145 150 155 160

gat aca aga gct aga agt gtt gtg gtg acc caa tat ata gct tta gag 528
 Asp Thr Arg Ala Arg Ser Val Val Val Thr Gln Tyr Ile Ala Leu Glu
 165 170 175

ctt gat ttt gtt gct aaa atc cca tct ttt gca ata tct gga cag gaa 576
 Leu Asp Phe Val Ala Lys Ile Pro Ser Phe Ala Ile Ser Gly Gln Glu
 180 185 190

gta cca tta tta tca gig tat gca caa gca gcg aat tta cat tlg cta 624
 Val Pro Leu Leu Ser Val Tyr Ala Gln Ala Ala Asn Leu His Leu Leu
 195 200 205

tta tta cga gat gct tcc att ttt gga gca gag tgg gga ttc aca cca 672
 Leu Leu Arg Asp Ala Ser Ile Phe Gly Ala Glu Trp Gly Phe Thr Pro
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gga gaa att tcc aca ttt tat gat cgt cag gtg aca cgt acc gcc caa 720
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 225 230 235 240

tac tcg gat tat tgt gta aag tgg tat aac act ggc tta gat aaa tta 768
 Tyr Ser Asp Tyr Cys Val Lys Trp Tyr Asn Thr Gly Leu Asp Lys Leu
 245 250 255

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 Lys Gly Thr Asn Ala Ala Ser Trp Leu Lys Tyr His Gln Phe Arg Arg
 260 265 270

gaa atg aca tta ctg gta tta gat tta gta gcg tta ttt cca aac tat 864
 Glu Met Thr Leu Leu Val Leu Asp Leu Val Ala Leu Phe Pro Asn Tyr
 275 280 285

gac aca cgt acg tat cca atc gaa aca acg gcc caa ctt aca cgg gaa 912
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gtg tat aca gat cca ata gta ttt aac aga gaa aca agt ggt gga ttt 960
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 325 330 335

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lgg aca cat cgg agl gcg gat gtt aca aat aca gtt tat tca gat aaa 1584
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 515 520 525

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 Ile Thr Gln Ile Pro Val Val Lys Ala His Thr Leu Val Ser Gly Thr
 530 535 540

act gtt att aaa ggt cct gga ttt aca gga ggc aat atc ctt aaa aga 1680
 Thr Val Ile Lys Gly Pro Gly Phe Thr Gly Gly Asn Ile Leu Lys Arg
 545 550 555 560

aca agt agt ggt ccg tta gct tat act agt gtc tct gla aaa tca cca 1728
 Thr Ser Ser Gly Pro Leu Ala Tyr Thr Ser Val Ser Val Lys Ser Pro
 565 570 575

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 580 585 590

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 Leu Arg Leu Phe Val Thr Ile Ser Gly Thr Arg Ile Tyr Ser Ile Asn
 595 600 605

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 625 630 635 640

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 Ser Leu Thr Val Gly Ala Asp Ser Phe Ala Ser Gly Gly Glu Val Tyr
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Val Asp Lys Phe Glu Leu Ile Pro Val Asn Ala Thr Phe Glu Ala Glu
660 665 670

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675 680 685

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Lys Lys Asp Ala Leu Gln Thr Ser Val Thr Asp Tyr Gln Val Asn Gln
690 695 700

gcg gca aac tta gta gaa tgc cta tcc gat gag tta tac cca aat gaa 2160
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725 730 735

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740 745 750

aac gga tgg acg gga agt acg gga atc gag gtt gcg gaa gga gat gtt 2304
Asn Gly Trp Thr Gly Ser Thr Gly Ile Glu Val Ala Glu Gly Asp Val
755 760 765

ctg ttt aaa gat cgt tgc ctt cgt ttg aca agt gcg aga gag att gat 2352
Leu Phe Lys Asp Arg Ser Leu Arg Leu Thr Ser Ala Arg Glu Ile Asp
770 775 780

aca gaa aca tat cca acg tat ctc tat caa caa ata gat gaa tca ctt 2400
Thr Glu Thr Tyr Pro Thr Tyr Leu Tyr Gln Gln Ile Asp Glu Ser Leu
785 790 795 800

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805 810 815

caa gat tta gag att aaa tta ata cgt cat cgg gca aat caa atc gtc 2496
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 820 825 830

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 850 855 860

tta gca ctc gaa aac aat gga gaa aat gga aat atg tct tct gat tcc 2640
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 915 920 925

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Gln Ala Ile Asp Arg Leu Phe Ala Asp Tyr Gln Asp Gln Lys Leu Asn
 965 970 975

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 980 985 990

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 995 1000 1005

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 1090 1095 1100

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 1125 1130 1135

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 1140 1145 1150

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<211> 3690

<212> DNA

<213> *Bacillus thuringiensis*

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